

# SERVICE MANUAL

PERFORMANCE

SIGNAL PROCESSOR

# A5

Guitar / Multi-FX / Bass

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# KORG

# 1. SPECIFICATIONS

## FOR A5GTR

INPUT	:	-25dBm / 1M $\Omega$ ( MAX +8dBm )
OUTPUT	:	L/MONO -10dBm / 5K $\Omega$ MAX ( MAX +8dBm ) HEADPHONE 100mW ( MAX ) / 32 $\Omega$ x 2
GAIN	:	15dBm ( TEST MODE )
FREQUENCY RESPONSE	:	20Hz ~ 17KHz +1.5, -3dB
DYNAMIC RANGE	:	88dB ( TEST MODE, IHF-A )
SAMPLING FREQUENCY	:	44.1KHz
INTERNAL EFFECTS	:	COMPRESSOR DISTORTION / OVERDRIVE 3 BAND EQ CHORUS / FLANGER REVERB / DELAY
VRs & SWs	:	INPUT VOLUME x 1 OUTPUT VOLUME x 1 EFFECT SELECT SW x 1 PARAMETER VOLUME x 5 MODE SELECT SW x 1 EFFECT / PROGRAM FOOT SW x 5 BYPASS SW x 1 WRITE SW x 1 POWER SW x 1
LEDs	:	7 SEGMENT LED x 1 EFFECT ON / PROGRAM NO. LED x 5 PROGRAM MODE LED x 1 MANUAL / EDIT MODE LED x 1 PEAK LED x 1
I/Os	:	INPUT ( PHONE JACK ) OUTPUT L/MONO ( PHONE JACK ) OUTPUT R ( PHONE JACK ) PHONES ( MINI STEREO JACK ) VOLUME ( PHONE JACK ) DC 9V ( POWER JACK )
CURRENT CONSUMPTION	:	250mV
POWER SOURCE	:	AC ADAPTOR
DIMENSIONS	:	430(W) x 205(D) x 60(H)mm
WEIGHT	:	1.5 Kg

## FOR A5FX

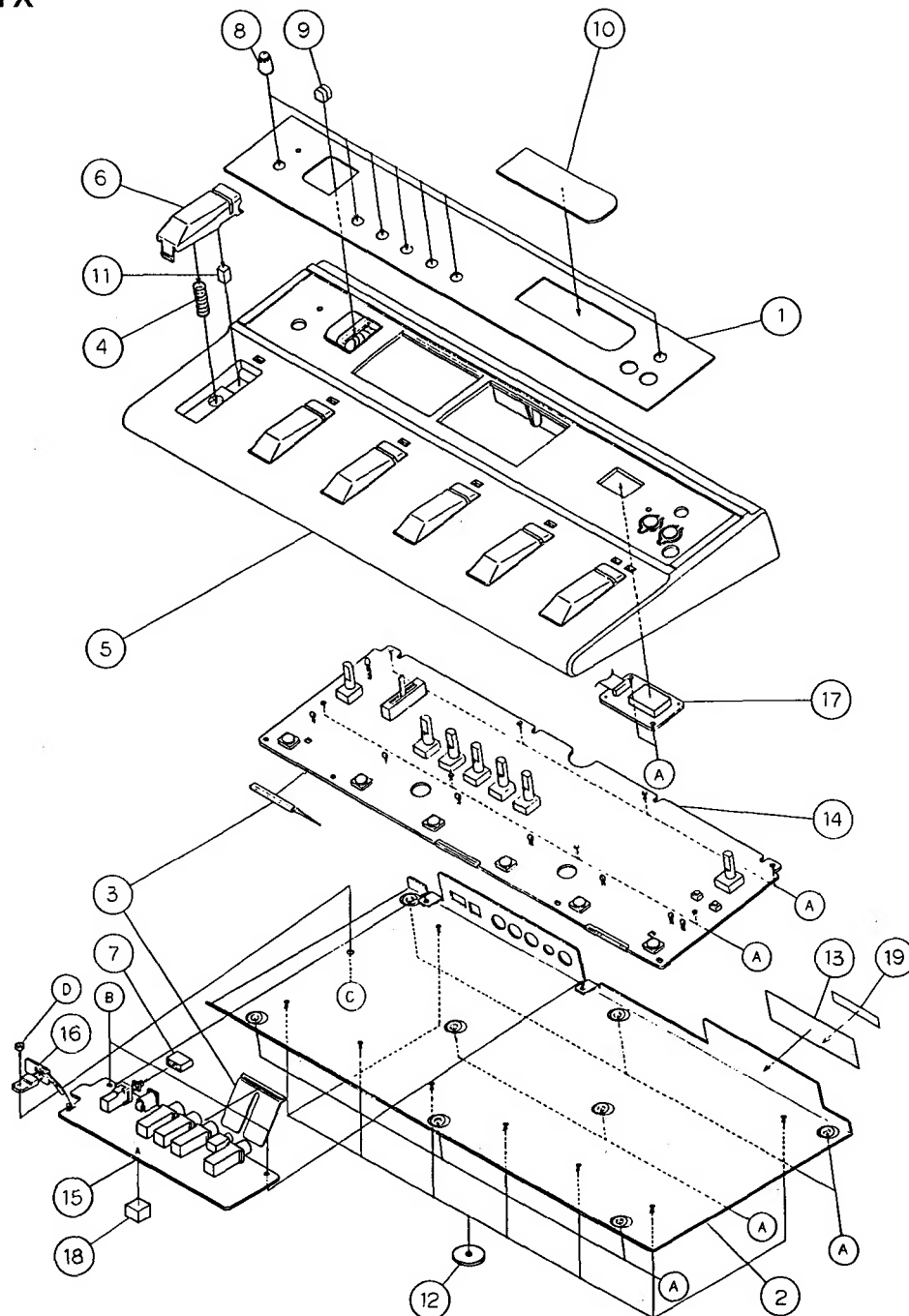
INPUT	:	-25dBm / 1M $\Omega$ ( MAX +8dBm )
OUTPUT	:	L/MONO -10dBm / 5K $\Omega$ MAX ( MAX +8dBm ) HEADPHONE 100mW ( MAX ) / 32 $\Omega$ x 2
GAIN	:	15dBm ( TEST MODE )
FREQUENCY RESPONSE	:	20Hz ~ 17KHz +1.5, -3dB
DYNAMIC RANGE	:	88dB ( TEST MODE, IHF-A )
SAMPLING FREQUENCY	:	44.1KHz
INTERNAL EFFECTS	:	COMPRESSOR 3 BAND EQ EXCITER CHORUS / FLANGER REVERB / DELAY
VRs & SWs	:	INPUT VOLUME x 1 OUTPUT VOLUME x 1 EFFECT SELECT SW x 1 PARAMETER VOLUME x 5 MODE SELECT SW x 1 EFFECT / PROGRAM FOOT SW x 5 BYPASS SW x 1 WRITE SW x 1 POWER SW x 1
LEDs	:	7 SEGMENT LED x 1 EFFECT ON / PROGRAM NO. LED x 5 PROGRAM MODE LED x 1 MANUAL / EDIT MODE LED x 1 PEAK LED x 1
I/Os	:	INPUT ( PHONE JACK ) OUTPUT L/MONO ( PHONE JACK ) OUTPUT R ( PHONE JACK ) PHONES ( MINI STEREO JACK ) VOLUME ( PHONE JACK ) DC 9V ( POWER JACK )
CURRENT CONSUMPTION	:	250mV
POWER SOURCE	:	AC ADAPTOR
DIMENSIONS	:	430(W) x 205(D) x 60(H)mm
WEIGHT	:	1.5 Kg

## FOR A5B

INPUT	:	-25dBm / 1M $\Omega$ ( MAX +8dBm )
OUTPUT	:	L/MONO -10dBm / 5K $\Omega$ MAX ( MAX +8dBm ) HEADPHONE 100mW ( MAX ) / 32 $\Omega$ x 2
GAIN	:	15dBm ( TEST MODE )
FREQUENCY RESPONSE	:	20Hz ~ 17KHz +1.5, -3dB
DYNAMIC RANGE	:	88dB ( TEST MODE, IHF-A )
SAMPLING FREQUENCY	:	44.1KHz
INTERNAL EFFECTS	:	COMPRESSOR 5 BAND EQ DYNA EXCITER CHORUS / FLANGER REVERB / DELAY
VRs & SWs	:	INPUT VOLUME x 1 OUTPUT VOLUME x 1 EFFECT SELECT SW x 1 PARAMETER VOLUME x 6 MODE SELECT SW x 1 EFFECT / PROGRAM FOOT SW x 5 BYPASS SW x 1 WRITE SW x 1 POWER SW x 1
LEDs	:	7 SEGMENT LED x 1 EFFECT ON / PROGRAM NO. LED x 5 PROGRAM MODE LED x 1 MANUAL / EDIT MODE LED x 1 PEAK LED x 1
I/Os	:	INPUT ( PHONE JACK ) OUTPUT L/MONO ( PHONE JACK ) OUTPUT R ( PHONE JACK ) PHONES ( MINI STEREO JACK ) DC 9V ( POWER JACK )
CURRENT CONSUMPTION	:	250mV
POWER SOURCE	:	AC ADAPTOR
DIMENSIONS	:	430(W) x 205(D) x 60(H)mm
WEIGHT	:	1.5 Kg

## 2. STRUCTURAL DIAGRAM

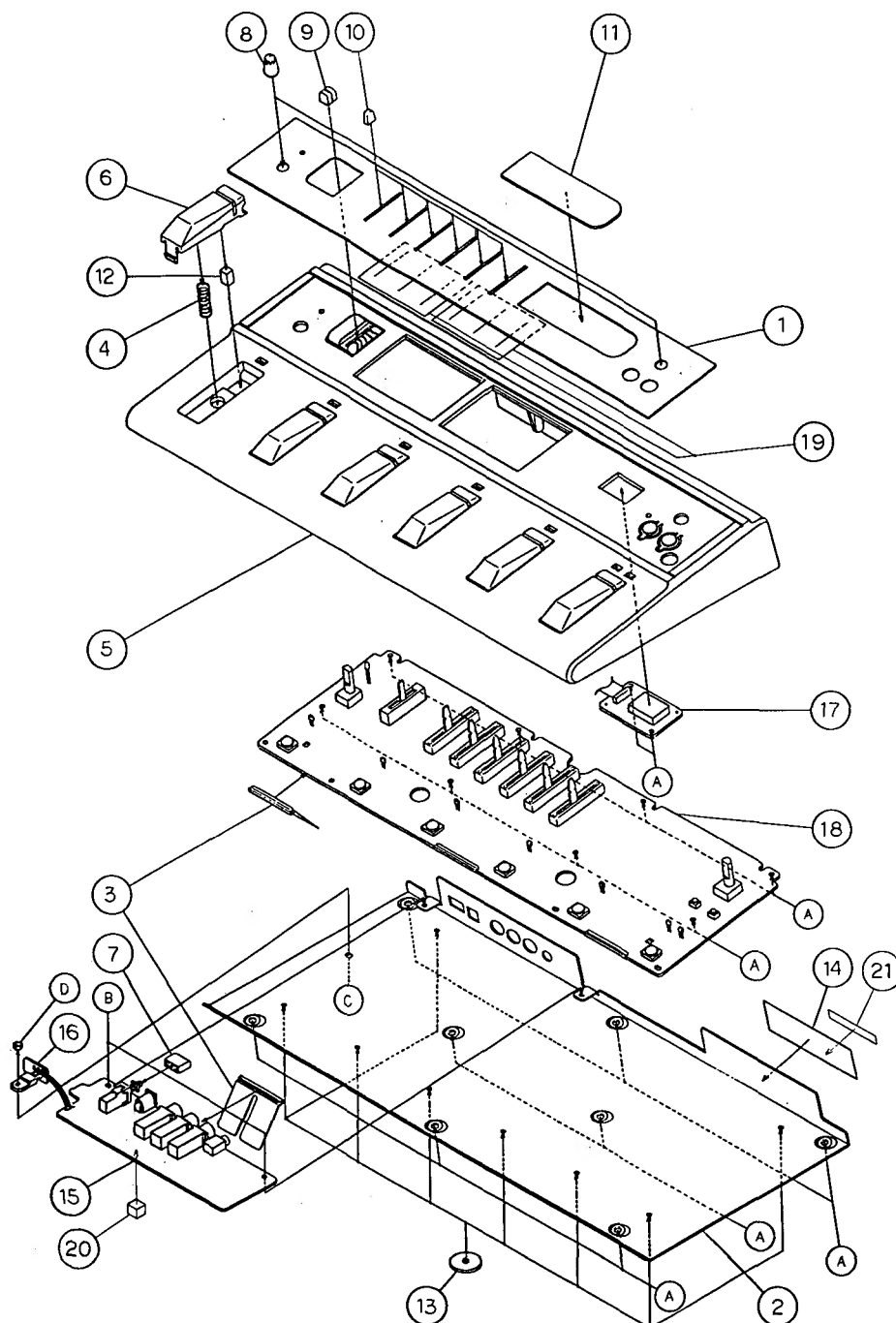
FOR GTR & FX



PART NO.	SCREWS & NUT	Q'TY
A	PLAX B BZNC 3 x 8	18
B	CT B ZMC 3 x 16	2
C	CT B BZNC 3 x 10	1
D	FHN ZMC 3	1

PART NO.	PART NAME	PART CODE
1	PANEL PLATE ( FOR GTR )	641018600
	PANEL PLATE ( FOR FX )	641018700
2	LOWER CHASSIS	641018800
3	SPRING PLATE	644003000
4	PEDAL SPRING	644003700
5	UPPER CASE	646037700
6	PEDAL	646037800
7	POWER SW KNOB	620018200
8	ROTARY VR KNOB	620022800
9	SLIDE SW KNOB	620022800
10	LED WINDOW ( FOR GTR )	630015200
	LED WINDOW ( FOR FX )	630015300
11	SW CUSHION	500013100
12	RUBBER FOOT	500013000
13	NAME SEAL	-----
14	P.C. BOARD KLM-886 ( FOR GTR )	001088600
	P.C. BOARD KLM-886 ( FOR FX )	001088601
15	P.C. BOARD KLM-887	001088700
16	P.C. BOARD KLM-888	001088700
17	P.C. BOARD KLM-888	001088700
18	RUBBER SPACER	500012900
19	SERIAL NO. SEAL	-----

# FOR BASS



PART NO.	SCREWS & NUT	Q'TY
A	PLAX B BZNC 3 x 8	18
B	CT B ZNC 3 x 18	2
C	CT B BZNC 3 x 10	1
D	FHN ZNC 3	1

PART NO.	PART NAME	PART CODE
1	PANEL PLATE ( FOR BASS )	641018600
2	LOWER CHASSIS	641018800
3	SPRING PLATE	644003000
4	PEDAL SPRING	644003700
5	UPPER CASE	646037700
6	PEDAL	646037600
7	POWER SW KNOB	820018200
8	ROTARY VR KNOB	820022900
9	SLIDE SW KNOB	820022800
10	SLIDE VR KNOB	820022800
11	LED WINDOW ( FOR BASS )	630015200
12	SW CUSHION	500013100
13	RUBBER FOOT	500013000
14	NAME SEAL	-----
15	P.C. BOARD KLV-887	001088700
16	P.C. BOARD KLV-888	001088700
17	P.C. BOARD KLV-889	001088700
18	P.C. BOARD KLV-890	001089000
19	SLIDE VR MASK	550014800
20	RUBBER SPACER	500012900
21	SERIAL NO. SEAL	-----

### 3. HOW TO DISASSEMBLE

#### < Remove the lower case >

Remove the screws ( PLAX B BZMC 3 x 8 ) x8 from the lower case and remove the lower case.

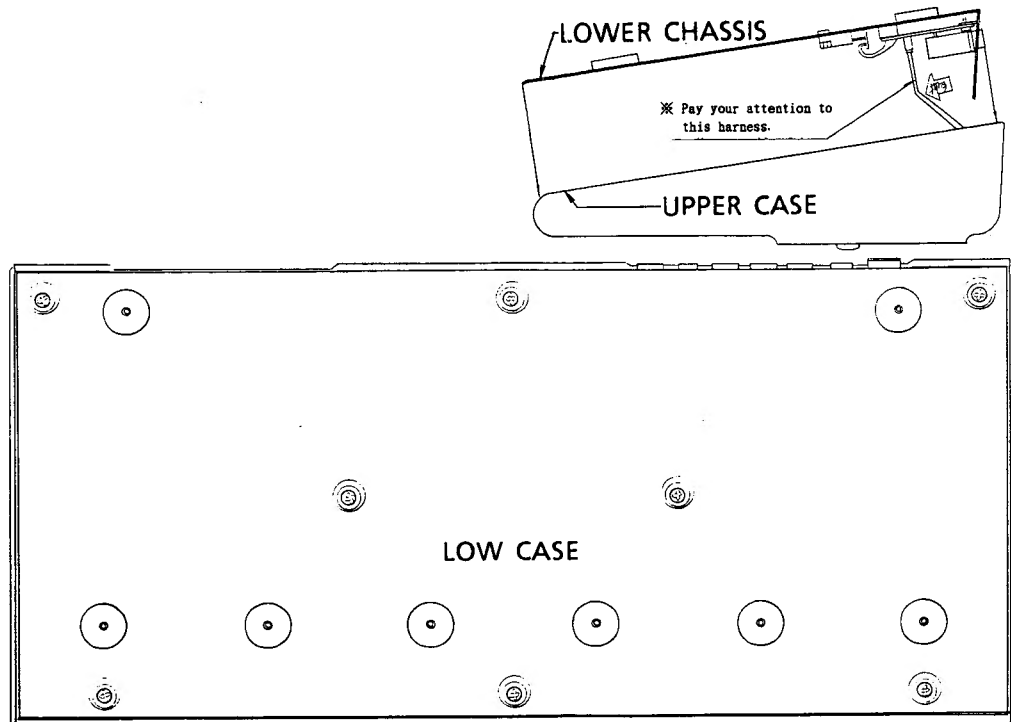


fig 1

#### < Remove the harnesses >

Remove 2pcs. of the harnesses which are connected with the main p. c. b. ( KLM-886 or 890 ) and the KLM-887.

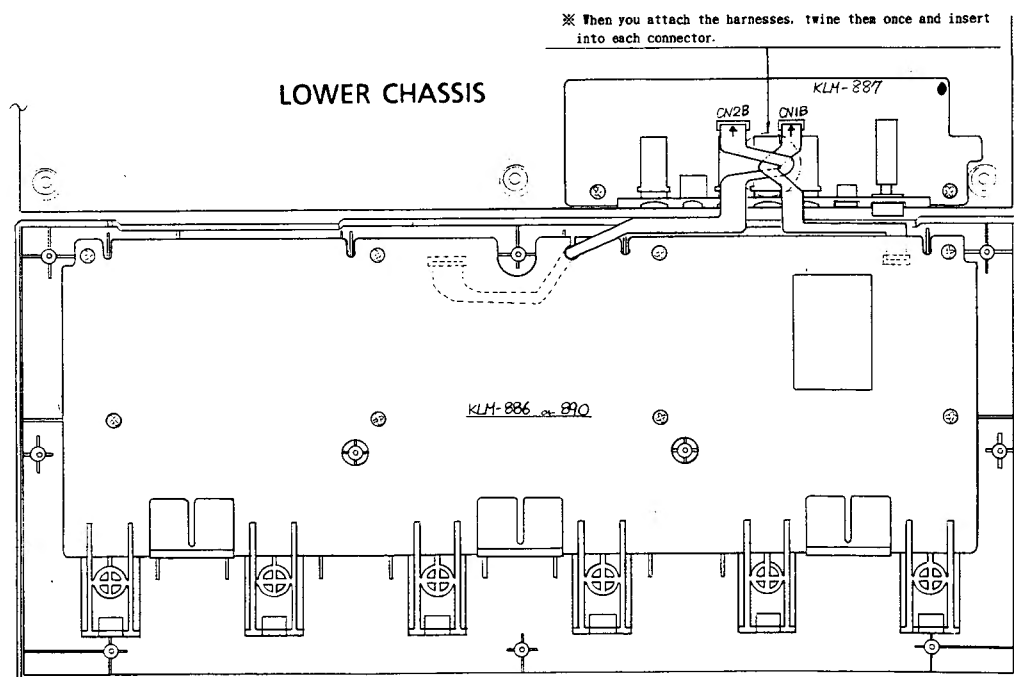


fig 2

< Remove the main p. c. b. ( KLM-886 or 890 ) >

1. Remove all the knobs of the SW and the VR on the upper case.

A5GTR/FX : INPUT VR KNOB      x 1  
          PARAMETER VR KNOB x 5  
          OUTPUT VR KNOB      x 1  
          SLIDE SW KNOB        x 1

A5B        : INPUT VR KNOB      x 1  
          PARAMETER VR KNOB x 6  
          OUTPUT VR KNOB      x 1  
          SLIDE SW KNOB        x 1

2. Remove the screws ( PLAX B BZMC 3 x 8 )x 8 from the main p. c. b.  
( KLM-886 or 890 ).

3. Remove the p. c. b. stopper indicated by ○ and finally remove  
the main p. c. b. .

※ When you attach the p. c. b. , pay your attention to the VRs and the LEDs.  
Also, note that the p. c. b. number is different according to the kind of  
the product.

A5GTR/FX : KLM-886  
A5B        : KLM-890

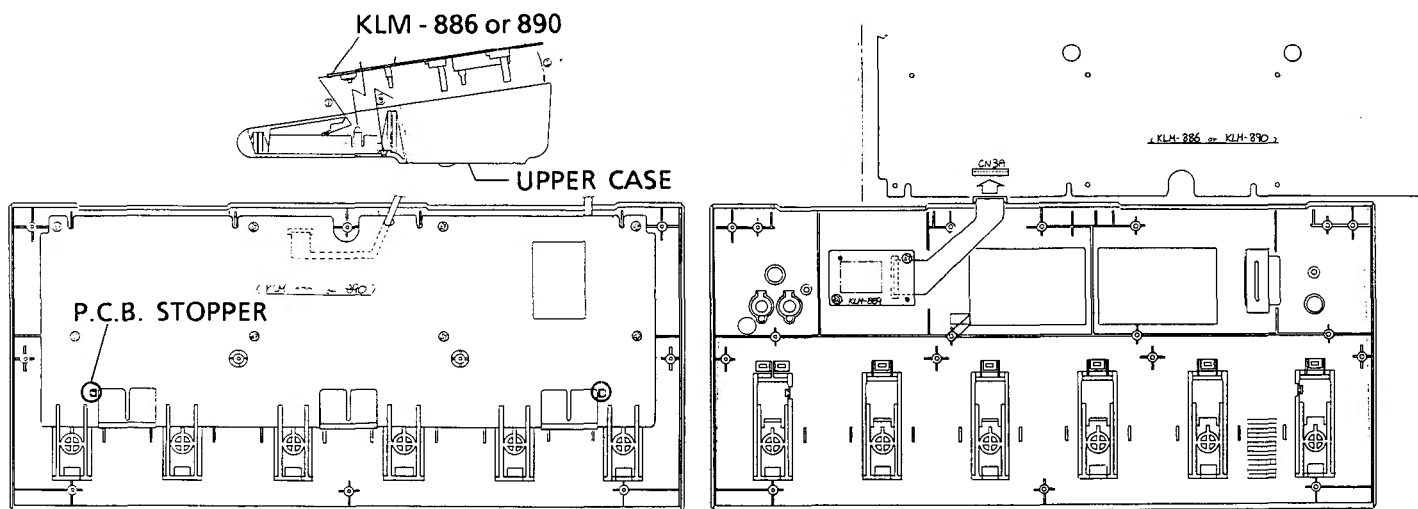
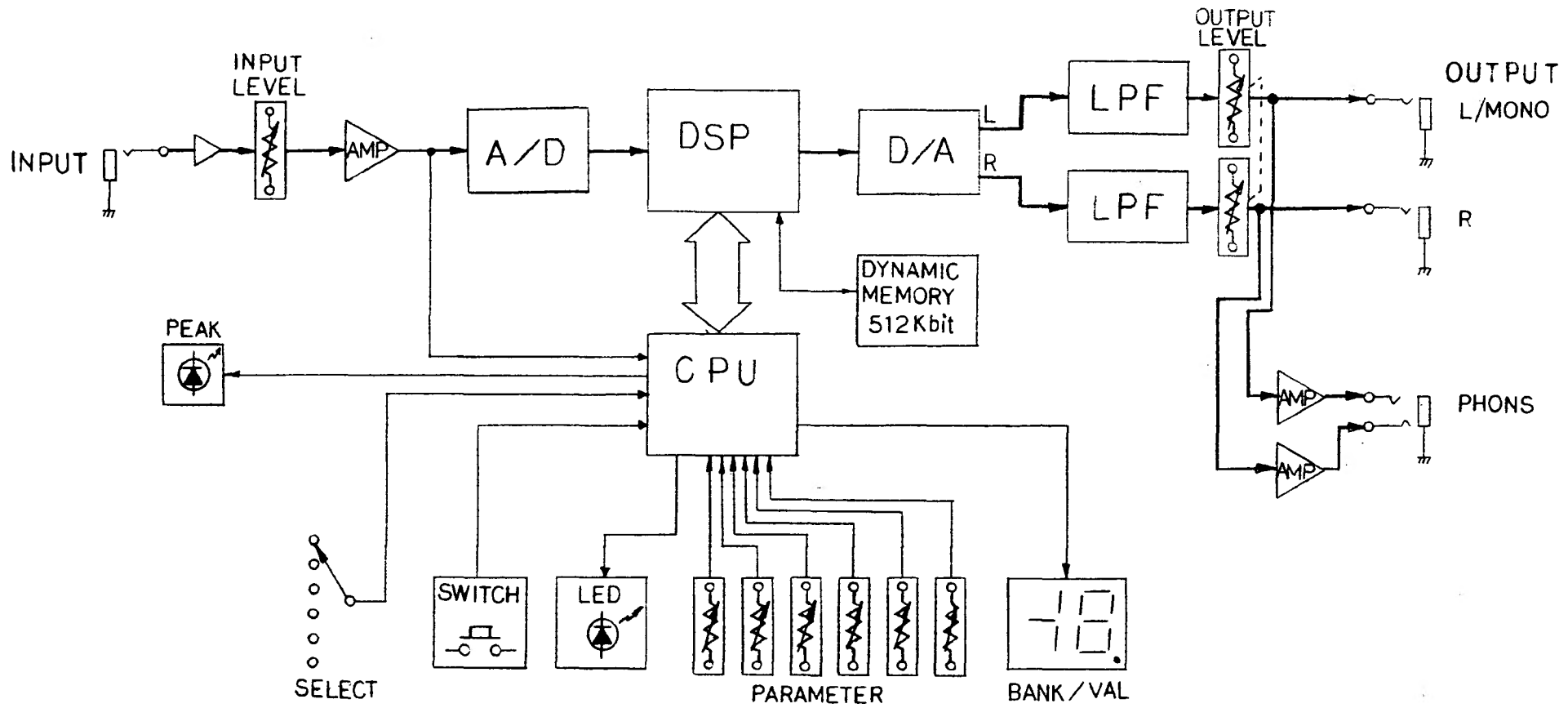


fig 3 & 4

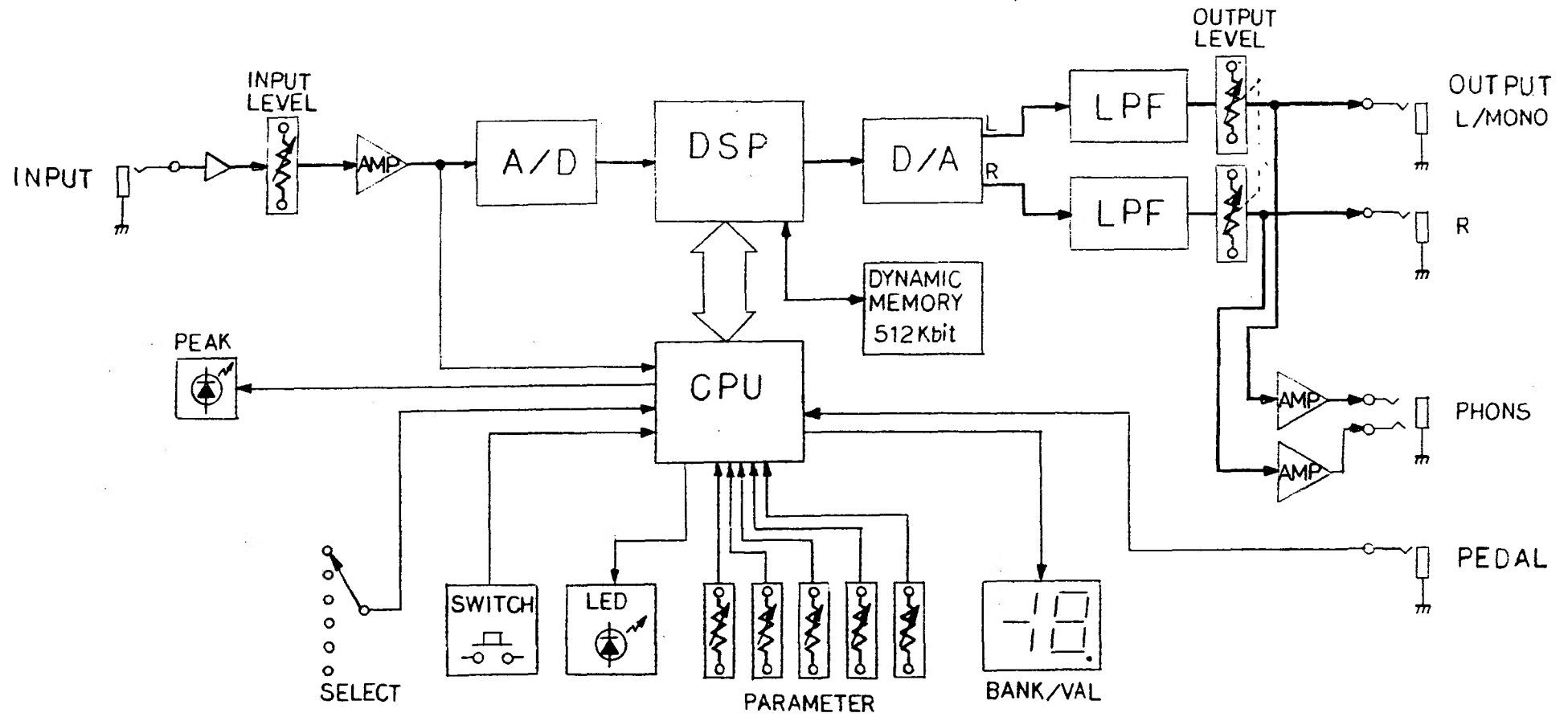


# 4. BLOCK DIAGRAM

FOR BASS

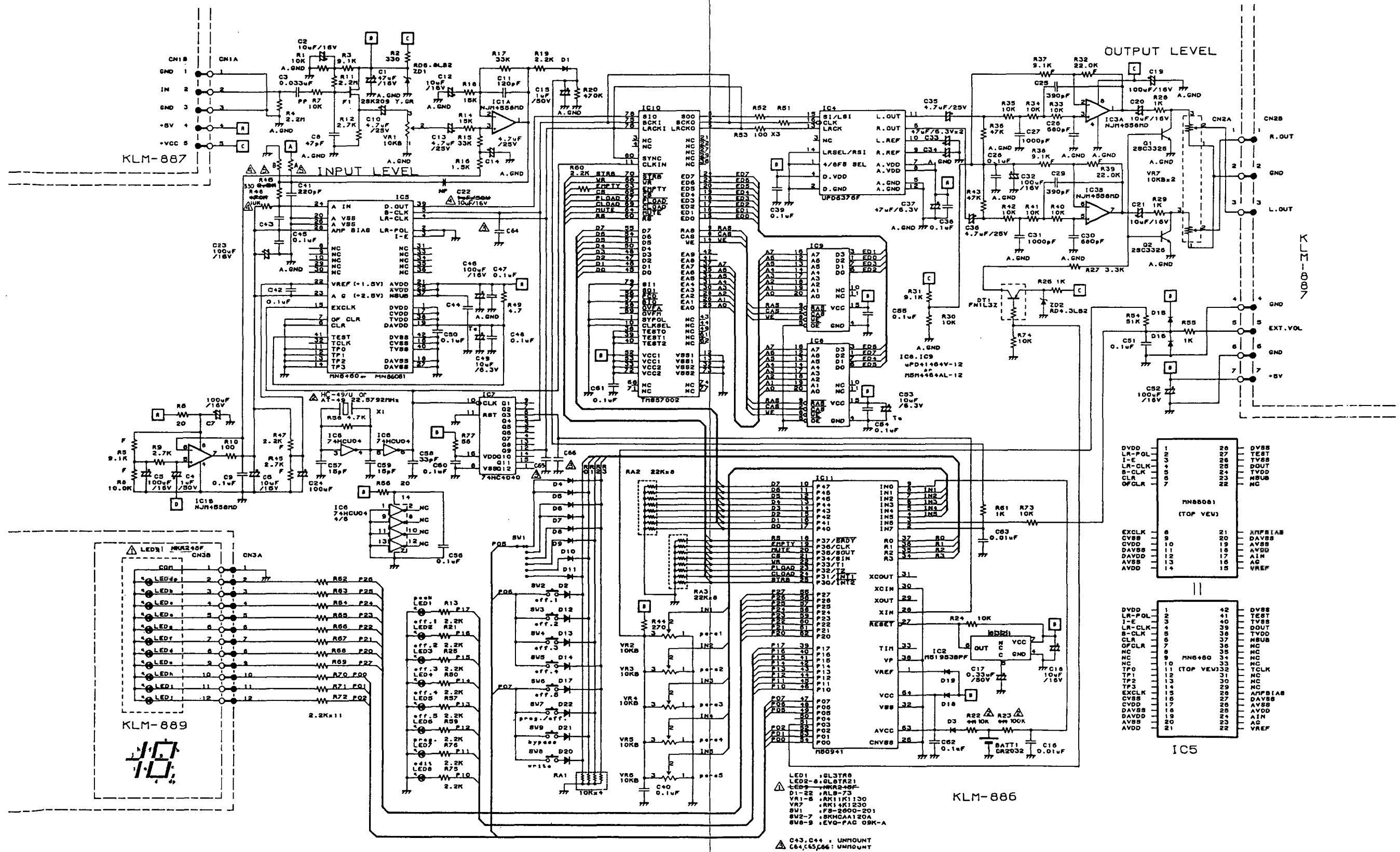


# FOR GTR/FX

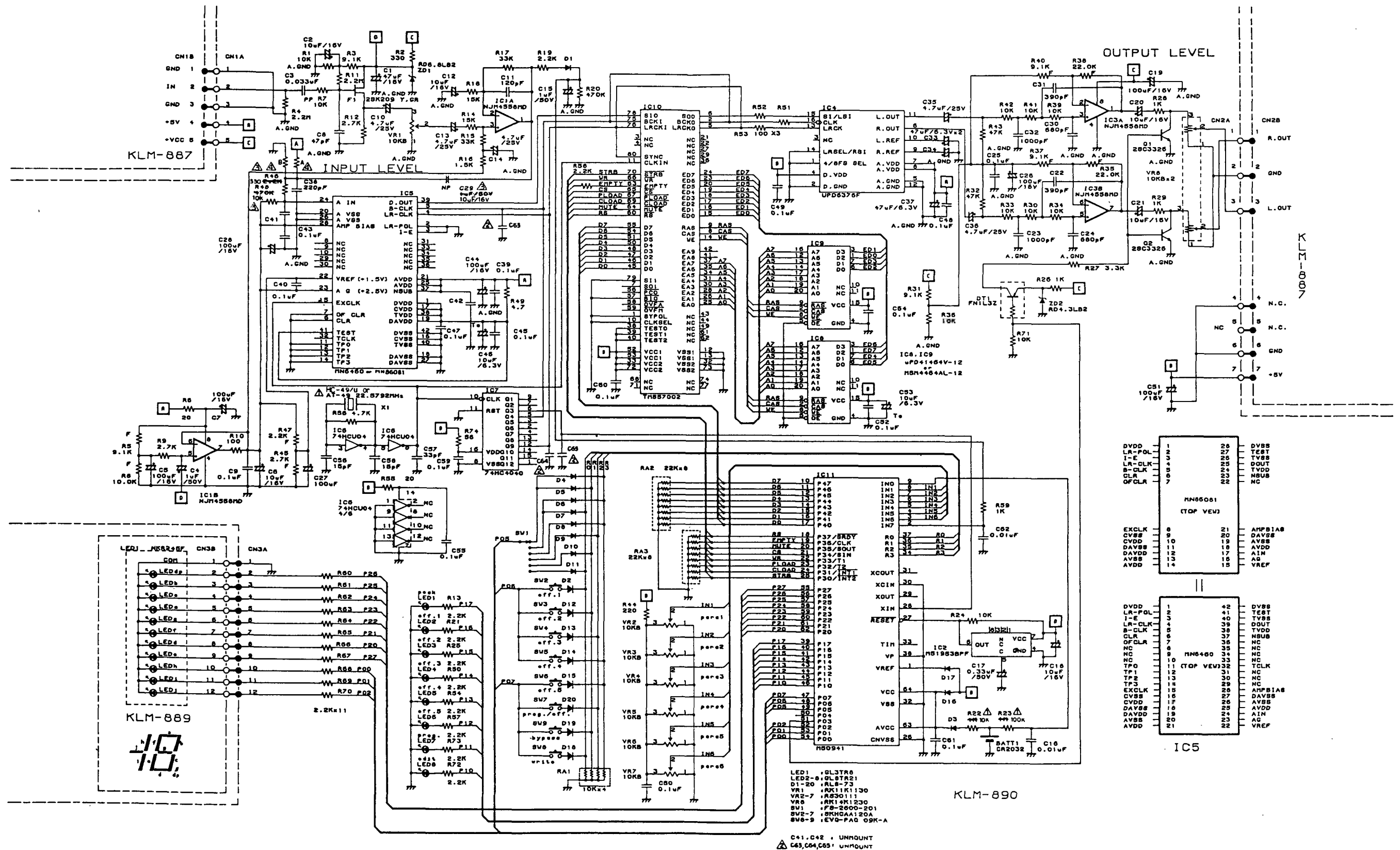


## 5. CIRCUIT DIAGRAM

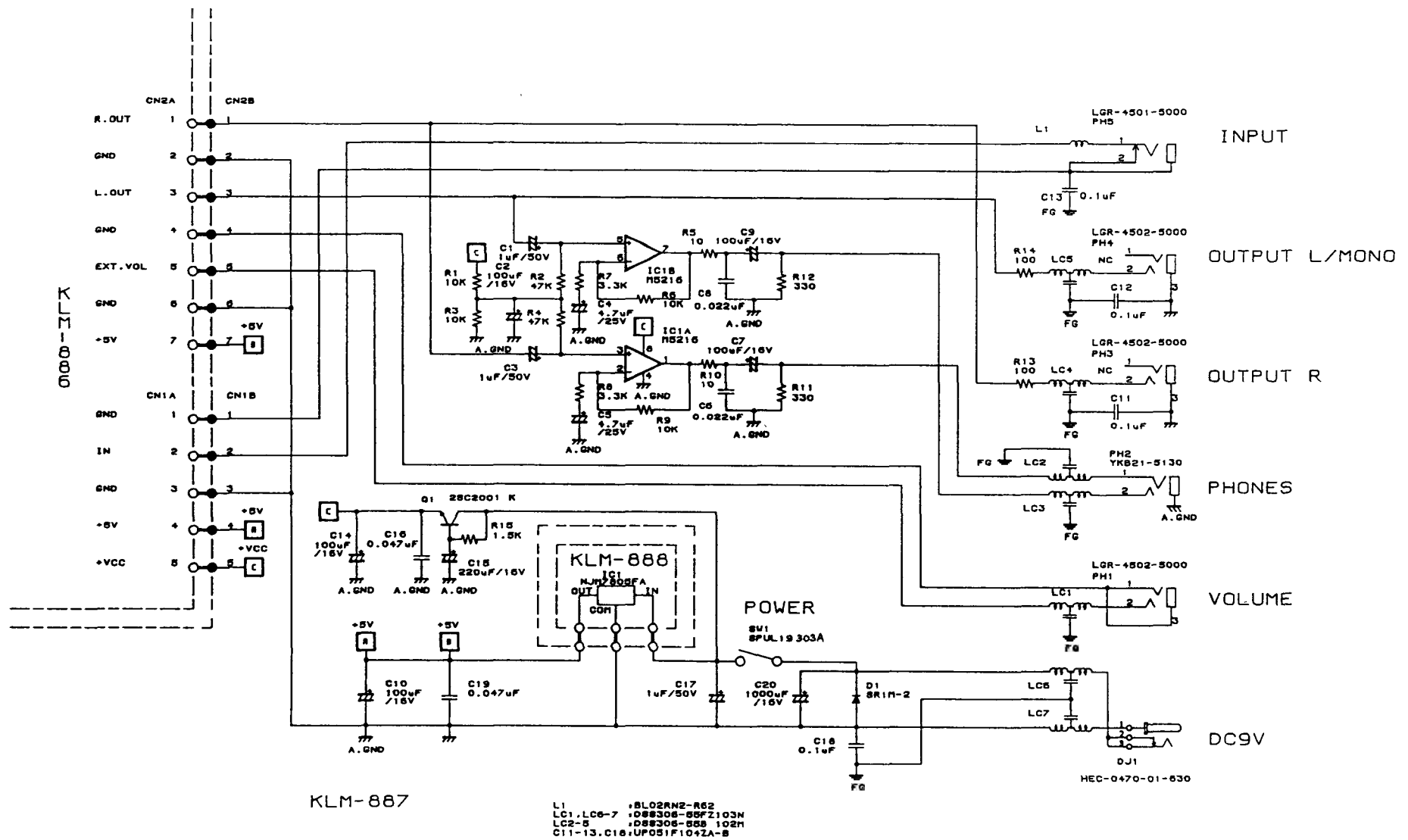
KLM-886, 889 (FOR GTR/FX)



# KLM-890, 889 (FOR BASS)

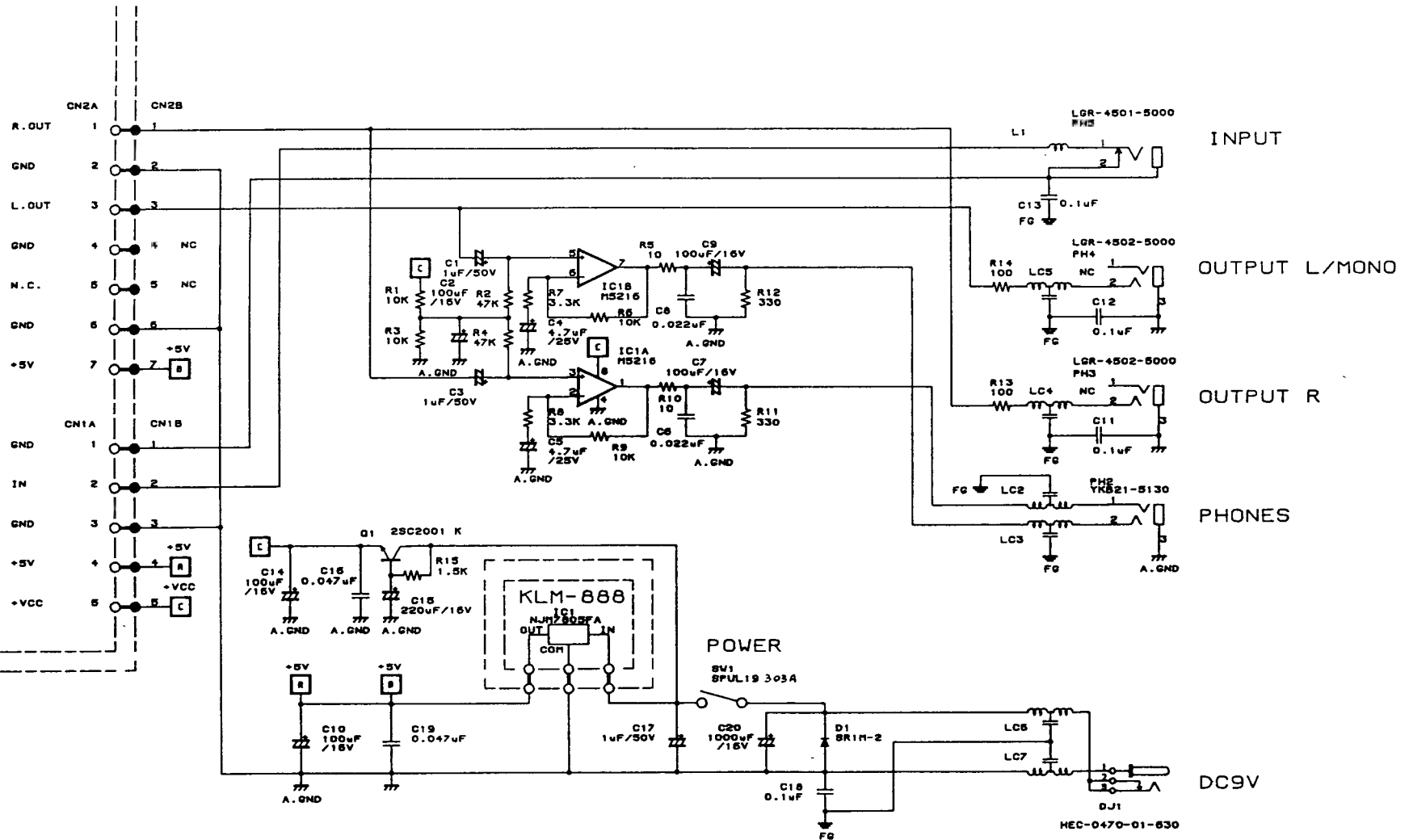


# KLM-887, 888 (FOR GTR/FX)



# KLM-887, 888 (FOR BASS)

KLM-887

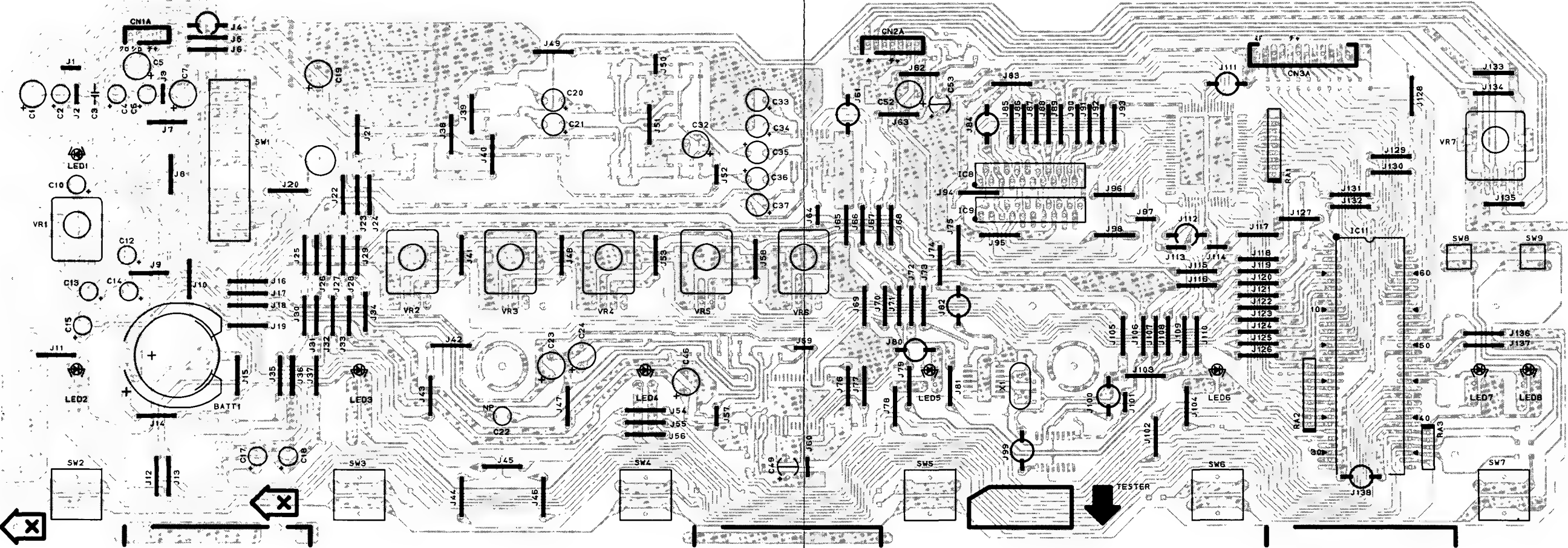


KLM-887

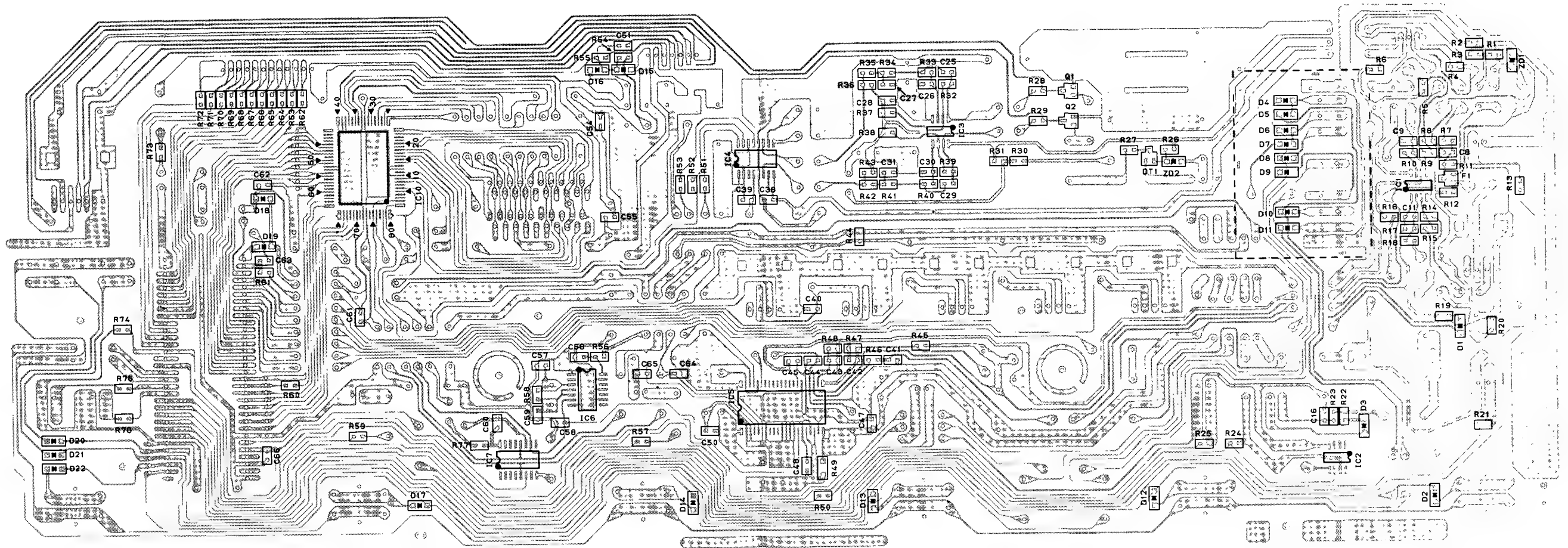
L1: 8L02RM2-R62  
 LC6-7: D88306-55WZ103H  
 LC2-5: D88306-55W 102M  
 C11-13, C18, UP051F104ZA-8

6. P. C. BOARDS

KLM-886 (UPPER SIDE)

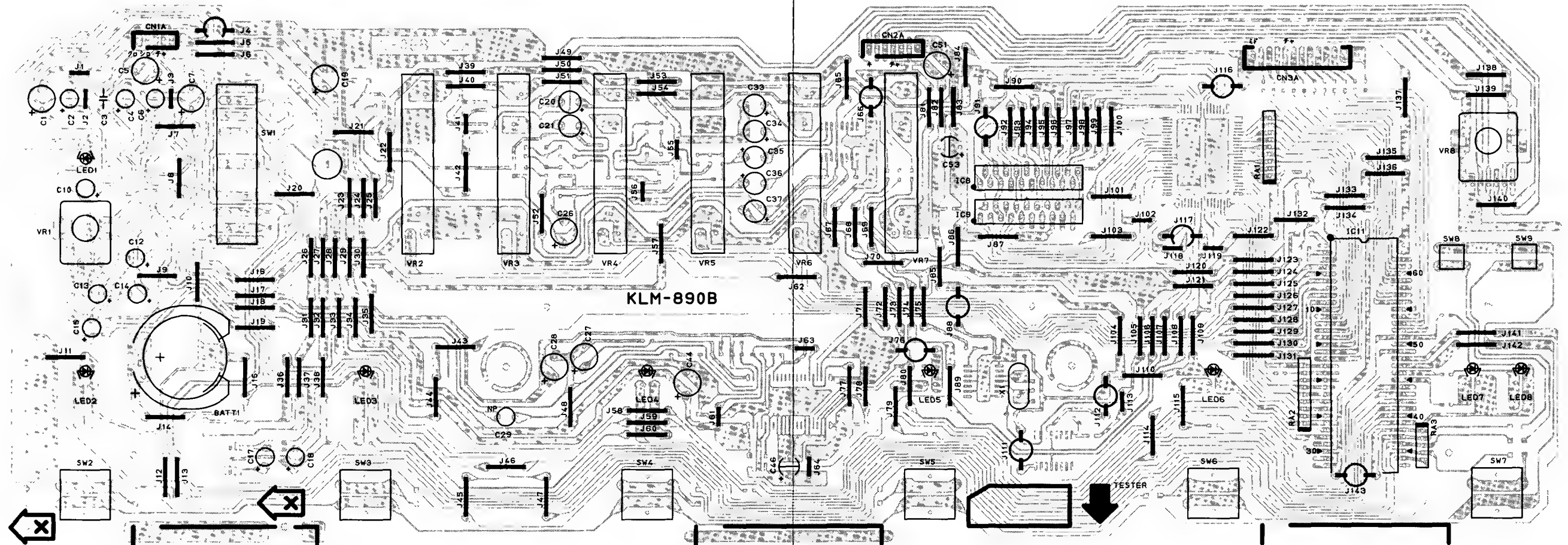


# KLM-886 (LOWER SIDE)

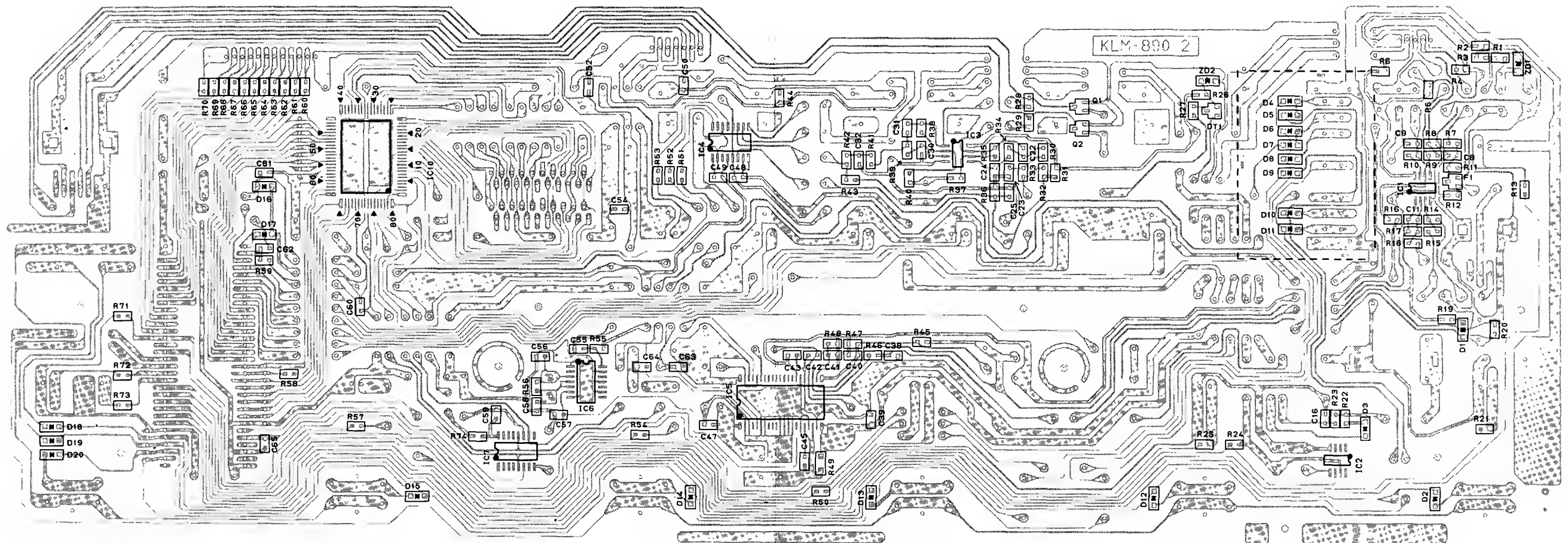




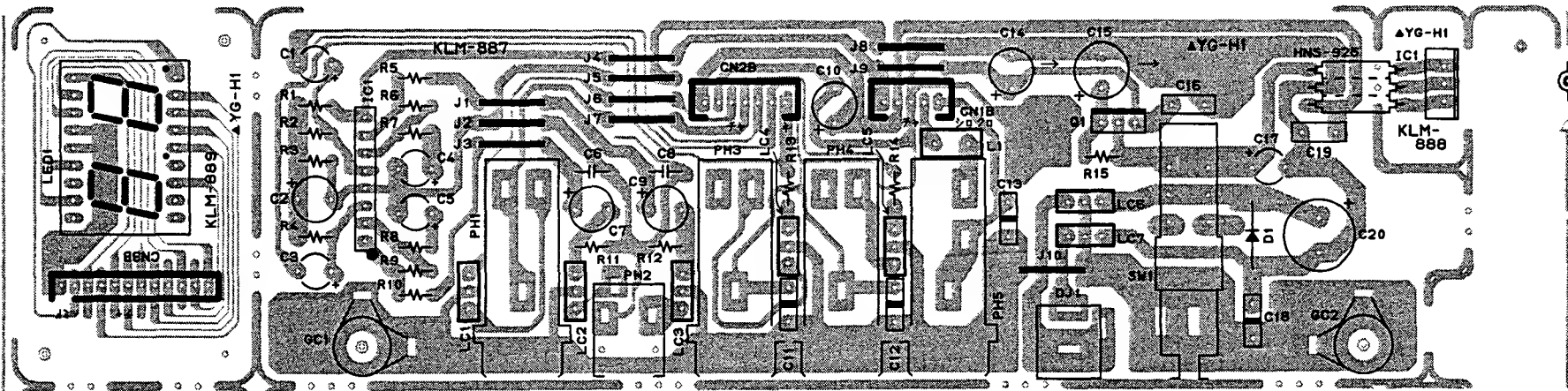
# KLM-890 (UPPER SIDE)



# KLM-890 (LOWER SIDE)



KLM-887/888/889



# 7. CIRCUIT EXPLANATION

## 1) CPU

The CPU uses M50941-xxxSP ( IC11 ). Also, this CPU has the internal memories of the ROM 8Kbyte and the RAM 192byte. Thus, the data of this internal memory is different according to the A5GTR, FX, BASS.

The clock uses 2.82MHz which is made at the oscillation circuit that is composed of by the 74HCU04 ( IC6 ) and the 74HC4040 ( IC7 ).

The main processes are as follows.

- \* The release of the analog mute ( MUTE, P03 )

When the power is turned on, the mute of the analog mute circuit and the DSP are released.

- \* The light control of the LED

The lighting of the 7 segment LED, the switch LEDs and the peak LED are controlled. When the LED lights, the CPU port becomes HIGH level.

7 SEGMENT LED ( P00-01, P20-27 )  
SWITCH / PEAK LED ( P10-17 )

- \* The data check of the parameter VRs and the volume pedal ( GTR only )  
( IN16 )

The voltage for the parameter edit and for the volume pedal is converted from analog to digital.

- \* The foot switches, the slide switch, the BYPASS switch and the WRITE switch are checked. ( P05-07, R0-3 )

- \* The check of the voltage of the back-up battery ( IN0 )

The voltage of the lithium battery to back up the RAM data in the CPU is checked.

- \* The data load process of the DSP ( D0-7 )

The data is transmitted from the CPU to the DSP.

## Regarding the message when the CPU is started

In case that any problem which is relevant to the CPU happens when the power is turned on, the following message is indicated in the display.

[ L ] : The voltage of the lithium battery is low.  
→Change the lithium battery or check the CPU.

[ E ] : The data of CPU cannot be written into the RAM.  
→Check the CPU and the RAM.

## 2) DSP

The DSP ( Digital Signal Processor ) uses the TMS57002 ( IC10 ).

\* The data bus for the input/output of the sound

SIO, BCKI, LRCKI.....INPUT  
SDO, SCK, LRCKO.....OUTPUT

\* The data bus for the control of the CPU

RS : HIGH ( LOW when the power is turned on )  
WR : LOW  
CS : LOW  
MUTE : HIGH  
PLOAD : LOW ( LOW when the power is turned on )  
CLOAD : HIGH ( LOW when the data is transmitted )  
STROB : HIGH ( LOW when the data is transmitted )

\* The data bus for the DRAM

EO-7, ED0-7  
RAS, CAS, WE

# 8. DIAGNOSTIC TEST (CPU TEST)

## ( CPU Test )


### < Starting the diagnostic test >

When the power is turned on while pressing the BYPASS switch and the MODE switch, the diagnostic test ( the CPU test ) starts.

### < LED check >

When the diagnostic test starts, the program proceeds to the LED check automatically.

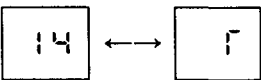
Keep pressing the BYPASS switch and the MODE switch and confirm that the 7 segment LED, the foot switch LEDs and the peak LED light.

The 7 segment LED indicates 

When it doesn't work correctly, check each LED and the CPU ports which are connected with each LED.

### < Check of the voltage of the back-up battery >







When the BYPASS switch and the MODE switch are released, the voltage of the back-up battery and the indication of the test mode are indicated alternately.



Confirm that the indication of the battery voltage is between 12 and 14. In case that it is less than 11, change the battery.

### < Slide SW test >

Confirm that the place of the slide switch is indicated with binary scale at the foot SW LEDs when the slide switch is operated.

SLIDE SW	FOOT SW LED
1	
2	
3	
4	
5	
6	

When it doesn't work correctly, check the slide switch and the CPU ports which are connected with the slide switch.

### < Parameter VR check >

Press the MODE foot switch and confirm that the value of 0~15 is indicated in the 7 segment LED when each parameter VR is operated.

When it doesn't work correctly, check each VR and the CPU ports which are connected with each VR.

### < Pedal jack check ( GTR/FX only ) >

Confirm that the value of -15~16 is indicated in the 7 segment LED when the KVP-001 is connected to the pedal jack of the rear panel and the pedal is operated.

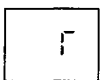
※ Set the slide VR of the KVP-001 to be 0.

When it doesn't work correctly, check the pedal jack and the CPU port which is connected with the pedal jack.

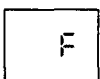
When all the checks are finished, turn the power off to proceed to the normal mode.

### < How to load the factory preset program >

1. Turn the power on while pressing the MODE FOOT SW and the WRITE SW.

→  is indicated in the 7 segment LED.

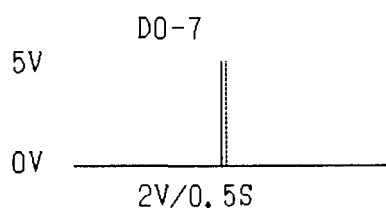
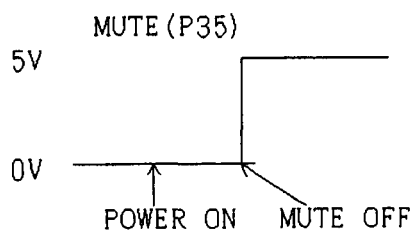
2. Press the FOOT SW 1 while the MODE SW and the WRITE SW are being pressed.

→  is indicated in the 7 segment LED and the factory preset program is loaded.

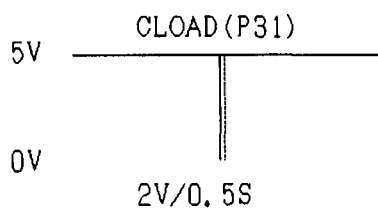
※ The data is not loaded in case that any other switch except the FOOT SW is pressed while the MODE FOOT SW and the WRITE SW are being pressed or they are released.

## 9. IC CHECK POINT

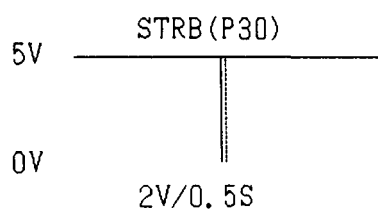
### < M50941 (CPU) >



When the power is turned on, the HIGH pulse is generated.

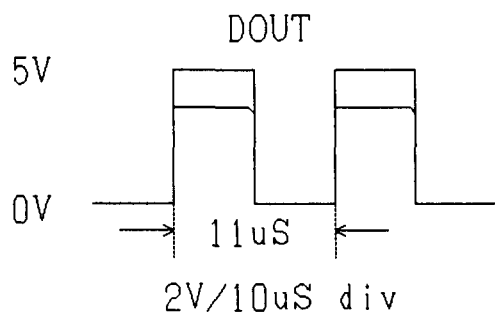


When the SW or VR is operated, the LOW pulse is generated.

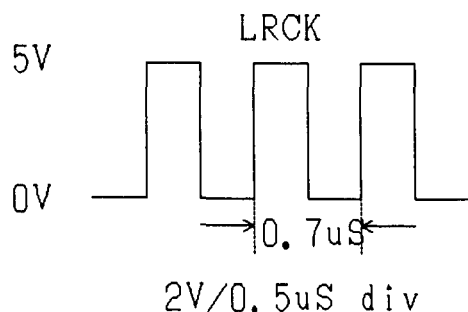
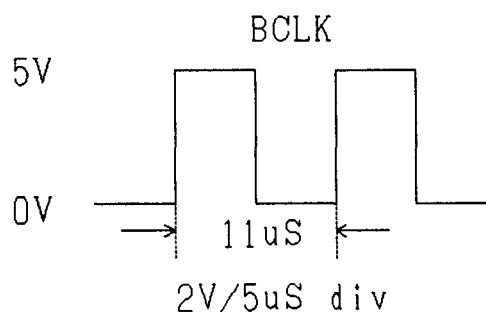


When the SW or VR is operated, the LOW pulse is generated.

### < UPD6376 (A/D CONVERTER) >

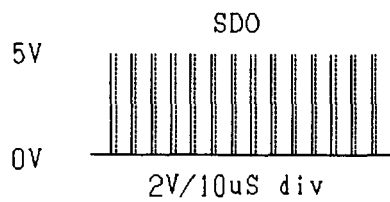


When the sound is received, the width of pulse changes.

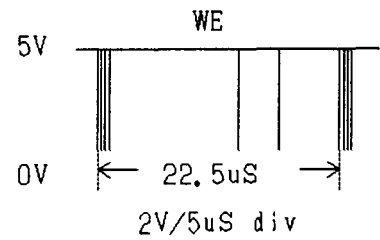
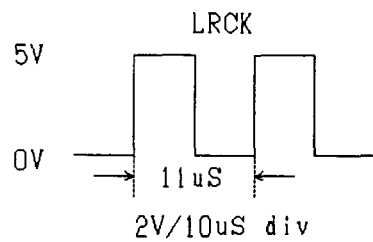
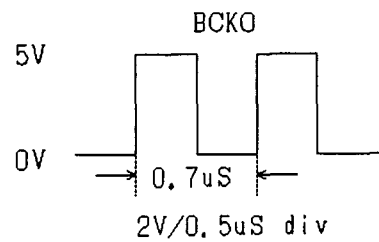




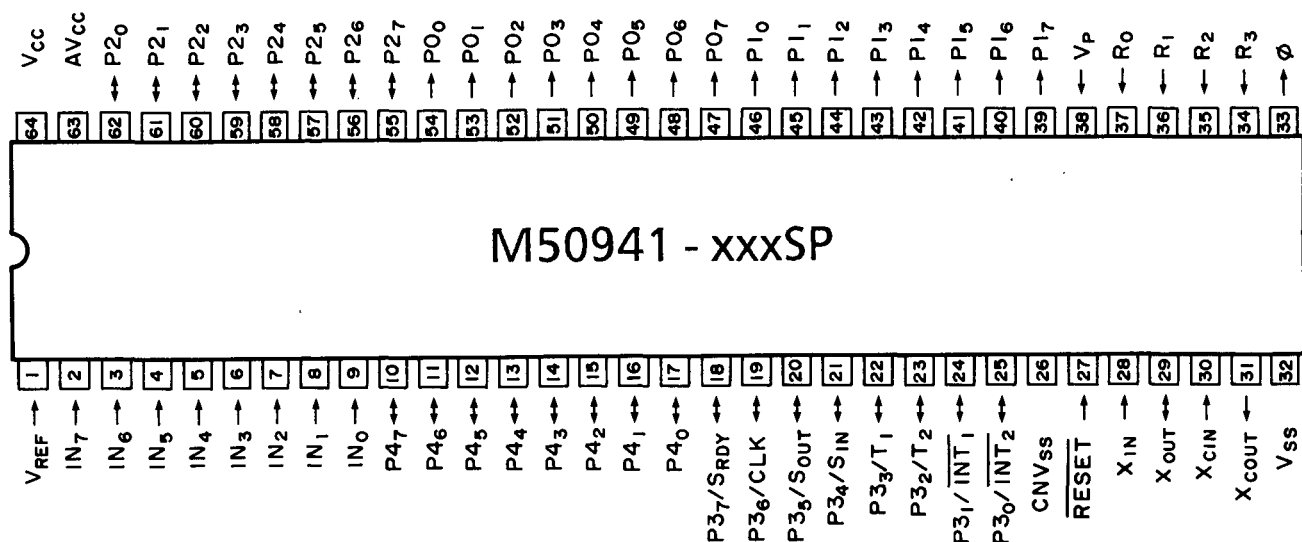
< TMS57002 (DSP) >



When the sound is received, the HIGH pulse is generated.

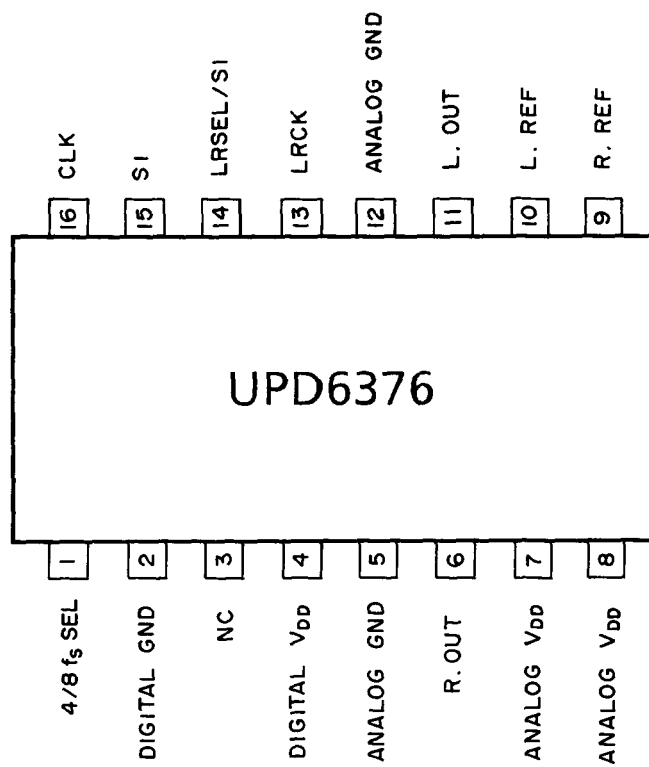


# 10. REFERENCE DATA



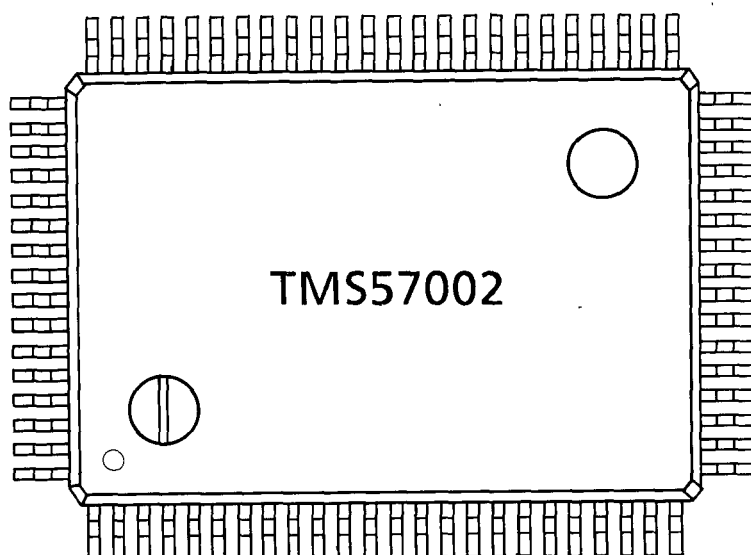
M 5 0 9 4 1 - x x x S P

TERMINAL MARK	I/O	TERMINAL NAME	TERMINAL MARK	I/O	TERMINAL NAME
Vcc, Vss	---	POWER SUPPLY	P00~P07	0	OUTPUT PORT P0
CNVss	---	CNVss	P10~P17	0	OUTPUT PORT P1
Vp	I	PULL DOWN	P20~P27	I/O	I/O PORT P2
RESET	I	RESET IN	P30~P37	I/O	I/O PORT P3
XIN	I	CLOCK IN	P40~P47	I/O	I/O PORT P4
XOUT	0	CLOCK OUT	R0~R3	I	INPUT PORT R
φ	0	TIMING OUT	IN0~IN7	I	ANALOG INPUT
XCIN	I	XCIN	AVcc	---	ANALOG Vcc
XCOUT	0	XCOUT	VREF	I	REF. VOLTAGE



# UPD 6 3 7 6

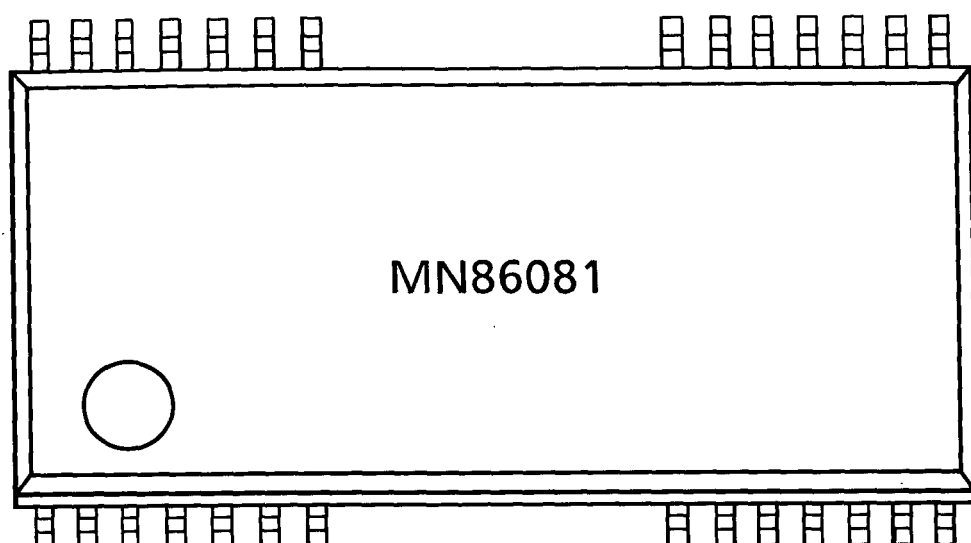
TERMINAL MARK	I/O	TERMINAL NAME	TERMINAL MARK	I/O	TERMINAL NAME
4/8Fs SEL	I		R. REF	---	Rch VOLTAGE
D. GND	---	DIGITAL GND	L. REF	---	Lch VOLTAGE
NC	---	NON CONNECTION	L. OUT	0	Lch OUTPUT
D. VDD	---	DIGITAL VDD	A. GND	---	ANALOG GND
A. GND	---	ANALOG GND	LRCK	I	L/R CLOCK
R. OUT	0	Rch OUTPUT	LRSEL	I	L/R SELECTION
A. VDD	---	ANALOG VDD	SI	I	SERIES INPUT
A. VDD	---	ANALOG VDD	CLK	I	CLOCK



# TMS 5 7 0 0 2

SIGNAL(S)	I/O	DESCRIPTION
VCC1, VCC2	---	+5V supply pins
VSS1, VSS2	---	Ground pins
CLKIN	I	System clock input
SYNC	I	System synchronization signal
SYPOL	I	Polarity select of SYNC active edge
SI0, SI1	I	S-port data receive input pins
S00, S01	O	S-port data transmit output pins
BCKI	I	Bit clock for Input S-ports
BCKO	I	Bit clock for Output S-ports
LRCKI	I	L/R channel indication signal for Input S-ports
LRCKO	I	L/R channel indication signal for Output S-ports
D(7-0)	I/O	8bit data input and output of P-port
STRB	I	Data Strobe input for P-port
WR	I	Write control signal input for P-port
EMPTY	O	Indicate P-port input buffer empty condition
CS	I	Chip select for P-port enable
PLOAD	I	Program data load control signal for P-port

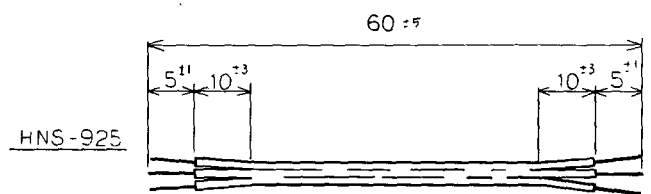
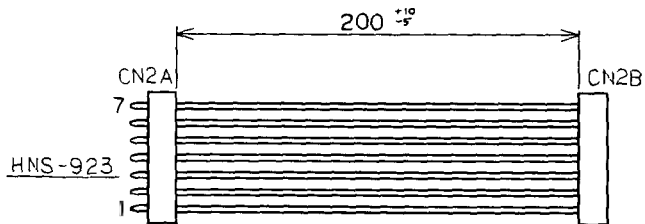
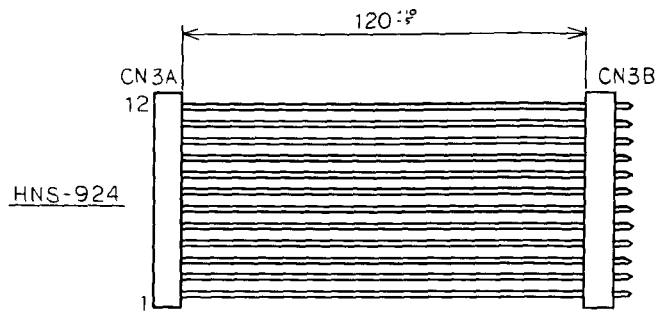
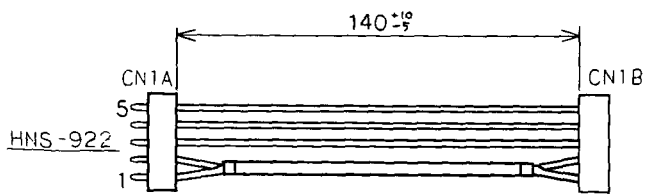
SIGNAL(S)	I/O	DESCRIPTION
CLOAD	I	Coefficient data background update request
BIO	I	Branch control signal
MUTE	I	Mute serial port signal
OVFM	O	Overflow detect signal on multiplier accumulator
OVFA	O	Overflow detect signal on ALU accumulator
RS	I	Hardware reset signal
PC0	O	Output Program Counter 0 state for sync clock
CLKSEL	I	Select signal of clock rate
TEST (0-4)	I	Device test control signals
RES	---	Reserved for future external DRAM interface



MN86081

PIN NAME	I/O	DESCRIPTION	PIN NAME	I/O	DESCRIPTION
DVDD	---	DIGITAL VDD ( +5V )	VREF	I	REF. VOLTAGE (+1.5V)
LR-POL	---		AG	---	ANALOG GND ( +2.5V )
I-E	---		AIN	I	ANALOG INPUT
LR-CLK	I	L/R CLOCK INPUT	AVDD	---	ANALOG VDD
B-CLK	I	BIT CLOCK INPUT	AVSS	---	ANALOG VSS
CLR	---	CLEAR TERMINAL	DAVSS	---	DIGITAL VSS
OFCLR	---	OFFSET CLEAR	AMPBIAS	---	OP. AMP BIAS (+2.5V)
EXCLK	I	512FS INPUT	NC	---	NON CONNECTION
CVSS	---	DIGITAL VSS	NSUB	---	
CVDD	---	DIGITAL VDD ( +5V )	TVDD	---	DIGITAL VDD
DAVSS	---	DIGITAL VSS	DOUT	O	SERIAL DATA OUTPUT
DAVDD	---	DIGITAL VDD ( +5V )	TVSS	---	DIGITAL VSS
AVSS	---	ANALOG VSS	TEST	---	TEST TERMINAL
AVDD	---	ANALOG VDD ( +5V )	DVSS	---	DIGITAL VSS

FOR HARNESSES



# 11. PARTS LIST

## FOR GTR

PART CODE	PART NAME / SPECIFICATION	P. C. BOARD	NOTE	Q' TY
001088600	P. C. BOARD ASSEMBLY KLM-886	886	FOR GTR	1
001088700	P. C. BOARD ASSEMBLY KLM-887/8/9	887/8/9		1
133004002	BLOCK R RKC4BS 103J 10KX4	886		1
133008001	BLOCK R RKC8BS 223J 22KX8	886		2
219051200	EMI FILTER DSS306-55B102M	887/8/9		4
219051400	EMI FILTER DSS306-55FZ103N100	887/8/9		3
264003533	PPC 100V 33000PF J APSV	886		1
304020040	TR 2SC2001 T K	887/8/9		1
304020200	TR 2SC3326A-TE85L	886		2
304030180	TR FN1L3Z-T1B	886		1
304060051	FET 2SK209-0/Y/GR TE85L	886		1
310002100	DIODE SR1M-2	887/8/9		1
312009800	LED GL8TR21	886		7
312009900	LED GL3TR8	886		1
312050500	LED MODULE NKR-245FB RED	887/8/9		1
314001400	DIODE RLS-73 TE-11	886		22
314025400	ZENER DIODE RD6.8LB2-T1	886		1
314025500	ZENER DIODE RD4.3LB2-T1	886		1
320002200	IC MN88081 (SOP)	886	A/D CONVERTER	1
320009057	IC NJM-7805FA	887/8/9		1
320011026	IC M5216L (SIP)	887/8/9		1
320011100	IC M5M4464AL-12 (ZIP)	886	DRAM	2
320011137	IC M50941-587SP	886	CPU FOR GTR	1
320021142	IC TMS57002PH (QFP)	886	DSP	1
324001006	IC UPD74HC004GS-E2 (SOP)	886		1
324001022	IC UPD74HC4040GS-E2 (SOP)	886		1
324001023	IC UPD6376GS-E2 (SOP)	886	D/A CONVERTER	1
324009008	IC NJM4558MD-TE3 (SOP)	886		2
324011012	IC M51953BFP-33A (SOP)	886	RESET	1
335006800	CRYSTAL OSC. AT-49 22.5792MHZ	886		1
360023300	VR RK11K1130A3JA 10KB	886		6
362006200	VR RK14K1230A0XA 10KBX2	886		1
373007600	SLIDE SW FS-2600-201	886		1
375005000	TACT SW SKHCAA120A	886		6
375010500	CHIP SW EVQ-PAC09K-A	886		2
375010800	PUSH SW SPUL19303A	887/8/9		1

PART CODE	PART NAME / SPECIFICATION	P. C. BOARD	NOTE	Q' TY
402002300	COIL BL02RN2-R62	887/8/9		1
450002300	PHONE JACK LGR4502-5000 (STEREO)	887/8/9		3
450002400	PHONE JACK LGR4501-5000 (MONO)	887/8/9		1
454006200	HEC-0470-01-630	887/8/9		1
454008300	PHONE JACK YKB21-5130	887/8/9		1
470192200	HARNESS HNS-922	886		1
470192300	HARNESS HNS-923	886		1
470192400	HARNESS HNS-924	887/8/9		1
470192500	HARNESS HNS-925	887/8/9		1
471070500	CONNECTOR TOP B5B-PH	887/8/9		1
471070700	CONNECTOR TOP B7B-PH	887/8/9		1
471071200	CONNECTOR TOP B12B-PH	886		1
520001900	LITHIUM BATTERY CR2032-HE2	M. PART		1
575015000	LED SPACER LS-15-6.5 L=6.5mm	886		7
575015200	LED SPACER LS-15-14 L=14mm	886		1
620018200	POWER SW KNOB	M. PART		1
620022800	SLIDE SW KNOB	M. PART		1
620022900	ROTARY VR KNOB	M. PART		7
630015200	X-051G LED WINDOW	M. PART		1
641018600	X-051G PANEL PLATE	M. PART		1
641018800	X-051 LOWER CASE	M. PART		1
641018900	X-051 SHIELD PLATE	M. PART		1
644003000	X-507 GND SPRING	M. PART		4
644003700	PEDAL SPRING	M. PART		6
646037600	X-051 PEDAL	M. PART		6
646037700	X-051G/G2 UPPER CASE	M. PART		1



# FOR FX

PART CODE	PART NAME / SPECIFICATION	P. C. BOARD	NOTE	Q' TY
001088601	P. C. BOARD ASSEMBLY KLM-886	886	FOR FX	1
001088700	P. C. BOARD ASSEMBLY KLM-887/8/9	887/8/9		1
133004002	BLOCK R RKC4BS 103J 10XX4	886		1
133008001	BLOCK R RKC8BS 223J 22XX8	886		2
219051200	EMI FILTER DSS306-55B102M	887/8/9		4
219051400	EMI FILTER DSS306-55FZ103N100	887/8/9		3
264003533	PPC 100V 33000PF J APSV	886		1
304020040	TR 2SC2001 T K	887		1
304020200	TR 2SC3326A-TE85L	886		2
304030180	TR FN1L3Z-T1B	886		1
304060051	FET 2SK209-0/Y/GR TE85L	886		1
310002100	DIODE SR1M-2	887/8/9		1
312009800	LED GL8TR21	886		7
312009900	LED GL3TR8	886		1
312050500	LED MODULE NKR-245FB RED	887/8/9		1
314001400	DIODE RLS-73 TE-11	886		22
314025400	ZENER DIODE RD6.8LB2-T1	886		1
314025500	ZENER DIODE RD4.3LB2-T1	886		1
320002200	IC MN86081 (SOP)	886	A/D CONVERTER	1
320009057	IC NJM-7805FA	887/8/9		1
320011026	IC M5216L (SIP)	887/8/9		1
320011100	IC M5M4464AL-12 (ZIP)	886	DRAM	2
320011138	IC M50941-588SP	886	CPU FOR FX	1
320021142	IC TMS57002PH (QFP)	886	DSP	1
324001006	IC UPD74HC004GS-E2 (SOP)	886		1
324001022	IC UPD74HC4040GS-E2 (SOP)	886		1
324001023	IC UPD6376GS-E2 (SOP)	886	D/A CONVERTER	1
324009008	IC NJM4558MD-TE3 (SOP)	886		2
324011012	IC M51953BFP-33A (SOP)	886	RESET	1
335006800	CRYSTAL OSC. AT-49 22.5792MHZ	886		1
360023300	VR RK11K1130A3JA 10XB	886		6
362006200	VR RK14K1230A0XA 10RXX2	886		1
373007600	SLIDE SW FS-2600-201	886		1
375005000	TACT SW SKHCAA120A	886		6
375010500	CHIP SW EVQ-PAC09K-A	886		2
375010800	PUSH SW SPUL19303A	887/8/9		1

PART CODE	PART NAME / SPECIFICATION	P. C. BOARD	NOTE	Q' TY
402002300	COIL BL02RN2-R62	887/8/9		1
450002300	PHONE JACK LGR4502-5000 (STEREO)	887/8/9		3
450002400	PHONE JACK LGR4501-5000 (MONO)	887/8/9		1
454006200	JACK HEC-0470-01-630	887/8/9		1
454008300	PHONE JACK YKB21-5130	887/8/9		1
470192200	HARNESS HNS-922	886		1
470192300	HARNESS HNS-923	886		1
470192400	HARNESS HNS-924	887/8/9		1
470192500	HARNESS HNS-925	887/8/9		1
471070500	CONNECTOR TOP B5B-PH	887/8/9		1
471070700	CONNECTOR TOP B7B-PH	887/8/9		1
471071200	CONNECTOR TOP B12B-PH	886		1
520001900	LITHIUM BATTERY CR2032-HE2	M. PART		1
575015000	LED SPACER LS-15-6.5 L=6.5mm	886		7
575015200	LED SPACER LS-15-14 L=14mm	886		1
620018200	POWER SW KNOB	M. PART		1
620022800	SLIDE SW KNOB	M. PART		1
620022900	ROTARY VR KNOB	M. PART		7
630015300	X-051G11 LED WINDOW	M. PART		1
641018700	X-051G11 PANEL PLATE	M. PART		1
641018800	X-051 LOWER CASE	M. PART		1
641018900	X-051 SHIELD PLATE	M. PART		1
644003000	X-507 GND SPRING	M. PART		4
644003700	PEDAL SPRING	M. PART		6
646037600	X-051 PEDAL	M. PART		6
646037700	X-051G/G2 UPPER CASE	M. PART		1

# FOR BASS

PART CODE	PART NAME / SPECIFICATION	P. C. BOARD	NOTE	Q' TY
001088700	P. C. BOARD ASSEMBLY KLM-887/8/9	887/8/9		1
001089000	P. C. BOARD ASSEMBLY KLM-890	890		1
133004002	BLOCK R RKC4BS 103J 10KX4	890		1
133008001	BLOCK R RKC8BS 223J 22KX8	890		2
219051200	EMI FILTER DSS306-55B102M	887/8/9		4
219051400	EMI FILTER DSS306-55FZ103N100	887/8/9		2
264003533	PPC 100V 33000PF J APSV	890		1
304020040	TR 2SC2001 T K	887/8/9		1
304020200	TR 2SC3326A-TE85L	890		2
304030180	TR FN1L3Z-T1B	890		1
304060051	FET 2SK209-Y/GR TE85L	890		1
310002100	DIODE SR1M-2	887/8/9		1
312009800	LED GL8TR21	890		7
312009900	LED GL3TR8	890		1
312050500	LED MODULE NKR-245FB RED	887/8/9		1
314001400	DIODE RLS-73 TE-11	890		20
314025400	ZENER DIODE RD6. 8LB2-T1	890		1
314025500	ZENER DIODE RD4. 3LB2-T1	890		1
320002200	IC MN88081 (SOP)	890	A/D CONVERTER	1
320009057	IC NJM-7805FA	887/8/9		1
320011026	IC M5216L (SIP)	887/8/9		1
320011100	IC M5M4484AL-12 (ZIP)	890	DRAM	2
320011136	IC M50941-586SP	890	CPU FOR B	1
320021142	IC TMS57002PH (QFP)	890	DSP	1
324001006	IC UPD74HC04GS-E2 (SOP)	890		1
324001022	IC UPD74HC4040GS-E2 (SOP)	890		1
324001023	IC UPD6376GS-E2 (SOP)	890	D/A CONVERTER	1
324009008	IC NJM4558MD-TE3 (SOP)	890		2
324011012	IC M51953BFP-33A (SOP)	890	RESET	1
335006800	CRYSTAL OSC. AT-49 22.5792MHZ	890		1
360023300	VR RK11K1130A3JA 10KB	890		1
362006200	VR RK14K1230A0XA 10KBX2	890		1
365008800	SLIDE VR RS30111A4019A 10KB	890		6
373007600	SLIDE SW FS-2600-201	890		1
375005000	TACT SW SKHCAA120A	890		6
375010500	CHIP SW EVQ-PAC09K-A	890		2

PART CODE	PART NAME / SPECIFICATION	P. C. BOARD	NOTE	Q' TY
375010800	PUSH SW SPUL19303A	887/8/9		1
402002300	COIL BL02RN2-R62	887/8/9		1
450002300	PHONE JACK LGR4502-5000 (STEREO)	887/8/9		2
450002400	PHONE JACK LGR4501-5000 (MONO)	887/8/9		1
454006200	JACK HEC-0470-01-630	887/8/9		1
454008300	PHONE JACK YKB21-5130	887/8/9		1
470192200	HARNESS HNS-922	890		1
470192300	HARNESS HNS-923	890		1
470192400	HARNESS HNS-924	887/8/9		1
470192500	HARNESS HNS-925	887/8/9		1
471070500	CONNECTOR TOP B5B-PH	887/8/9		1
471070700	CONNECTOR TOP B7B-PH	887/8/9		1
471071200	CONNECTOR TOP B12B-PH	890		1
520001900	LITHIUM BATTERY CR2032-HE2	M. PART		1
575015000	LED SPACER LS-15-6.5 L=6.5mm	890		7
575015200	LED SPACER LS-15-14 L=14mm	890		1
620018200	POWER SW KNOB	M. PART		1
620022800	SLIDE SW KNOB	M. PART		1
620022900	ROTARY VR KNOB	M. PART		2
620023300	SLIDE VR KNOB	M. PART		6
630015400	X-051B LED WINDOW	M. PART		1
641018900	X-051 SHIELD PLATE	M. PART		1
641019400	X-051B PANEL PLATE	M. PART		1
641019500	X-051B LOWER CASE	M. PART		1
644003000	X-507 GND SPRING	M. PART		4
644003700	PEDAL SPRING	M. PART		6
646037600	X-051 PEDAL	M. PART		6
646038100	X-051B UPPER CASE	M. PART		1

# KORG

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